DOCUMENT RESUME

ED 120 508 32 CE 006 814

TITLE	Transportation Cluster Volume 4 [Driver Training].
INSTITUTION	Pennsylvania State Dept. of Justice, Harrisburg. Bureau of Correction.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	1 Jan 71
NOTE	87p.; For the rest of the series, see CE 006 811-817
EDRS PRICE	MF-$0.83 HC-$4.67 Plus Postage
DESCRIPTORS	Adult Vocational Education; Basic Skills; Communication Skills; *Curriculum Guides; *Driver Education; Field Instruction; General Education; *High School Equivalency Programs; *Integrated Curriculum; Mathematics Education; Motor Vehicles; Occupational Clusters; Science Education; Social Studies; Traffic Safety; *Transportation; Vehicular Traffic; Vocational Education; Vocational Rehabilitation
IDENTIFIERS	Elementary Secondary Education Act Title I; ESEA Title I; Field Tests

ABSTRACT

The document is one of seven volumes of instructional materials developed around a cluster of Transportation Industries. Primarily technical in focus, they are designed to be used in a cluster-concept program and to integrate with a regular General Education Development (G.E.D.) program so that students may attain an employable skill level and a general academic background simultaneously. They provide basic skills necessary to enter a number of occupations in the Transportation cluster rather than an indepth development of skill in any one occupation. The volume contains approximately 120 hours of instruction in Driver Training and consists of 20 instructional units, each having one or more specific lessons. Each unit is designed for six hours, or one day, of instruction: three hours of technical laboratory instruction and three hours of related study in science, math, communications, and social studies. In most cases, there is only one lesson per unit. The units offer the instructor the essential materials: the aims (both in technical areas and in the four general education areas), instructional aids, topical outline and activities, suggested time sequence, evaluation guidelines, summary, and references. A selected bibliography concludes the volume. (Author/AJ)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED120508

Commonwealth of Pennsylvania

Department of Justice

Bureau of Correction

VOCATIONAL EDUCATION
PROGRAM OF STUDIES

Elementary, Secondary Education Act

Title I

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

TRANSPORTATION CLUSTER

VOLUME IV

CE008814

January 1, 1971

Pennsylvania Bureau of Correction

Harry A. Snyder

Director of Education

INTRODUCTION

The following information comprises one of seven volumes of instructional materials developed around a cluster of Transportation Industries and Occupations. These instructional materials are primarily technical in focus but are written to be used in a cluster concept program as part of an integrated curriculum.

The materials are aimed at preparing students with basic skills necessary to enter a number of occupations in industries within the Transportation cluster rather than providing an in-depth development of skill in any one occupation.

Each volume contains approximately one hundred twenty hours of instruction (about one month of study) and consists of twenty instructional units each having one or more specific lessons. Each unit is designed for six hours of instruction (three hours of technical laboratory experiences and three hours of related study in science, math, communications and social studies) but may be varied at the instructor's discretion.

The seven volumes or cluster areas in the series are:

Volume I - Automotive Services I
II - Automotive Services II
III - Small Power Sources
IV - Driver Training
V - Pneumatics, Hydraulics and Fluidics
VI - Farm and Earthmoving Equipment
VII - Transportation Systems

Students in the Transportation cluster should be introduced to the technical and integrated content through several methods closely related to the industrial structure. Among these are line production and assembly, group projects, experimentation, unit studies and independent study. Team teaching techniques should be employed between the academic specialist and the technical specialist and coordinators.

It is recommended that an orientation program be offered students to familiarize them with the cluster areas available so they may select one they wish to pursue. The cluster instruction is designed to integrate with the regular G. E. D. program so that students may receive an employable level of skill and a general academic background simultaneously.

As students select the technical cluster areas they wish to study, they should have the option to move through the G. E. D. content at their own speed using programmed instructional materials, instructional television, computer assisted instruction and other individualized learning techniques. Technical and integrated concepts are introduced each day by the specialists involved.

After completion of one or more months of study within another cluster providing, of course, this transfer is agreeable with the counselors, coordinators and instructors involved.

Lessons have been identified in the units. In most cases, however, there is only one lesson since each unit is limited to one day or six hours of instruction. The units offer the instructor the essential materials, vis-a-vis the aims, instructional aids, topical outline and activities, suggested time sequence, evaluation guidelines, summary and references. The primary and supplemental references are directly related to the topics and are important to the instructors. A selected bibliography is attached at the end of each volume as recommended additional sources of information.

Pagination of the units in this volume has been identified by cluster (T), volume (I, II, etc.), unit (1, 2, etc.) and page (.1, .2, .3, etc.) within each unit.

TABLE OF CONTENTS

UNIT		PAGE
1	Operation of the Automobile	T-IV- 1.1
2	Backing, Parking and Turning the Automobile	T-IV- 2.1
3	Auto Care and Maintenance	T-IV- 3.1
4	Straight Trucks	T-IV- 4.1
5	Orientation and Nomenclature of Tractor-Trailers	T-IV- 5.1
6	Safety and First Aid	T-IV- 6.1
7	Coupling-Uncoupling and Pretrip Inspection	T-IV- 7.1
8	Primary Driving Exercises	T-IV- 8.1
9	Forward and Backing Exercises	T-IV- 9.1
9a	All Charts	T-IV- 9a
10	Backward Serpentine	T-IV-10.1
11	30 Foot Alley Field Practice	T-IV-11.1
12	100 Foot Alley Exercises	T-IV-12.1
13	Jackknife Parking	T-IV-13.1
14	Driver's Log Books	T-IV-14.1
15	Department of Transportation Rules and Regulations on Dangerous Articles	T-IV-15.1
16	General Maintenance	T-IV-16.1
17	Freight Handling and Review of Units Five and Fifteen	T-IV-17.1
18	Field Tests on Pretrip Inspection, Coupling-Uncoupling and General Road Operation	T-IV-18.1
19	Field Tests on Forward and Backward Serpentine, Jackknife, 30' Alley and 100' Alley	T-IV-19.1
20	Industry Standards and Job Counseling	T-IV-20.1
BIBLIOGRAPHY		t-IV-1

INSTRUCTOR'S UNIT PLAN

Unit 1
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Operation of the Automobile**

AIM: To develop student awareness of the correct method of operating an automobile with both standard and automatic transmissions. To develop knowledge of the rules of the road and develop knowledge and skill in defensive driving.

INSTRUCTIONAL AIDS:

Film - **Safety Films.** Atlanta, Ga. 30303: Atlanta Traffic Safety Council, 130 Commerce Building, 34 Broad St., N. W. (16 mm).

Film - **Driver Education Film.** Randolph, Wisc. 53956: Educators Progress Service (16 mm).

Chart - **Standard Traffic Control Signs.** Washington, D. C. 20402: Superintendent of Documents, Government Printing Office.

Chart - **Birds to Beware Of.** Detroit: General Motors Corporation.

Kit - **Driver Training Kit for Teachers.** Detroit: General Motors Corporation.

EQUIPMENT:

16 mm projector, overhead projector, screen and automobiles.

PRIMARY REFERENCES:

1) **Design for Safety.** Detroit: General Motors Corporation (booklet).

2) **Drivers' Manual.** Department of Motor Vehicles from state applicable.

3) Manuals from automotive companies applicable to automobiles used.

4) **Manual of Uniform Traffic Control Devices.** Washington, D. C. 20402: Superintendent of Documents, Government Printing Office.

5) **Smith System.** Los Angeles 5, California: Driver Improvement Institute, Inc., 3757 Wilshire Blvd. (booklet).

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning the operation of automobiles through the use of automotive manuals, charts and models. Use introductory driver education films.

II. PRESENTATION of INTEGRATED CONCEPTS

		RELATED CONCEPTS
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Driving	1. Check position and location of automobile before starting. 2. Starting automobile: a. Check dash instruments. b. Listen for engine performance. 3. Coordination of steering, acceleration and braking with automatic transmission; with standard transmission. 4. Shifting patterns of standard transmissions. 5. Basic driving skills.	
B. Rules of the road	1. Types of road signs: a. Color identification b. Shape c. Symbols 2. Importance of yielding right-of-way. 3. Rules pertaining to various circumstances: a. Speed limits b. Stopping and parking a vehicle c. Accident reporting d. Registration and licensing	1. Principle of solid friction and its applications in tire and highway construction. 2. Changes in surface of highways due to varying weather conditions and wear.
C. Defensive driving	1. How to handle the vehicle under varying conditions: a. Inclement weather b. Urban traffic c. Freeway travel 2. Effect of driver's emotions and attitude on safe driving. 3. Safe driving practices.	

O BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Distance and speed traveled before shifting gears with standard transmission.	1. Manuals from automotive manufacturers that are applicable.	1. Uses of various types of automobiles. 2. Uses of various transmissions. 3. What practical application was found for the automobile?
1. Distance road signs are placed from objects. 2. Distance man activates signals, deceleration and braking before object. 3. Recognition of shapes of road signs.	1. References from driver's manuals in state applicable. 2. Continued development of the concept of language as a development of symbols. 3. Review of symbols as they pertain to other technical areas. 4. Study of symbols that pertain specifically to automotive area.	1. Importance of road signs.
1. Proper spacing between your vehicle and the one ahead.	1. References that describe these methods.	1. What practical application was found for these safety practices? 2. Traffic control programs used by municipalities and rural areas.

III. APPLICATION

A. Students practice driving with instructor on routes which include various types of road signs, obstacles, intersections, etc.

B. Practice recognizing road signs before one is close enough to read it.

C. Practice anticipating safety hazards.

IV. EVALUATION CRITERIA GUIDELINE

A. What are the five keys to space cushion driving?

B. Questions on how to keep and protect your license.

C. Questions on procedures in case of an accident.

D. Questions on special meanings of traffic signs.

E. Give students road tests.

V. SUMMARY

A. Importance of the automobile today.

B. Importance of safety devices.

C. Importance of defensive driving.

D. Reason for different types of vehicles.

VI. SUGGESTED TIME and SEQUENCE LISTING

100 minutes . . . Rules of the road and defensive driving techniques.

80 minutes . . . Related concepts.

180 minutes . . . Field and road driving experiences.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Charts - Placards and booklets from automotive dealers related to safe driving.

2) Drivers' examination study booklets from various states.

3) **Right Behind the Wheel**, Detroit: General Motors Corporation (booklet).

4) **We Drivers**, Detroit: General Motors Corporation (booklet).

5) Hayakawa, S. I., **Language in Thought and Action**, New York: Harcourt, Brace & World, Inc., 1963, 2nd Edition.

INSTRUCTOR'S UNIT PLAN

Unit 2
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Backing, Parking and Turning the Automobile**

AIM: To familiarize students with knowledge and skill of backing, parking and turning the automobile.

INSTRUCTIONAL AIDS:

Film - **Last Clear Chance.** Omaha, Nebraska: Union Pacific Railroad, Motion Picture Bureau, 1960 (16 mm, sound, color, 26 minutes).

Film - **Ten Little Engines.** Hartford, Conn.: Aetna Life & Casualty Company, 1967 (16 mm, sound, color, 8 minutes).

Film - **Look Who's Driving.** Hartford, Conn.: Aetna Life & Casualty Company, 1954 (16 mm, sound, color, 8 minutes).

Kit - **Driver Training Kit for Teachers.** Detroit: General Motors Corporation.

EQUIPMENT:

16 mm projector, screen, automobile, markers and barricades.

PRIMARY REFERENCES:

1) ATA, **Sportsmanlike Driving.** Washington, D. C.: The Association, American Automobile Association.

2) Bingham, M. P., **The Road to Better Driving.** Wyandotte, Michigan: Department of Driver Training, Theodore Roosevelt High School.

3) **Driver Education.** Millville, N. J. 08332: Millville High School.

4) Driver's Manual from state applicable.

I. INTRODUCTION and MOTIVATION

A. Demonstrate to students (through use of models) what can happen if a driver backs or parks incorrectly. Show the basic maneuvering movements of an automobile.

B. Introduce and show film: **Ten Little Engines,** discuss film.

II. PRESENTATION of INTEGRATED CONCEPTS

		RELATED CONCEPTS
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Backing exercises	1. Check position and location of automobile. 2. Coordination of steering, acceleration and braking. 3. Handling the steering wheel: a. Turn wheel direction car should go. 4. Develop a habit pattern of appropriate procedures. 5. Use well-marked course.	1. Different types of forces acting on a car: a. Newton's law of motion b. Centrifugal 2. Types of energy: a. Potential b. Kinetic
B. Parking	1. Angle Parking: a. "Head-In" b. "Back-In" 2. Parallel Parking: a. Signal b. Back slowly c. Accuracy 1. Do not hit objects 2. Park in proper area d. Leaving parking area e. Secure vehicle when parked 1. Upgrade-front of right front wheel touching curb. 2. Downgrade-back of right front wheel touching curb.	
C. Three point turn	1. Check area: a. Intersection b. Hill c. Curve 2. Heights of curb. 3. Choose area with no trees, telephone poles, etc. 4. Move car slowly and turn the wheel rapidly. 5. Stop close to right hand side of pavement. 6. Check for clear path both ways. 7. Signal left turn. 8. Go forward steering left. 9. Four feet from curb turn rapidly right. 10. Stop just short of curb. 11. Back-turning wheels right. 12. Turn wheels left and proceed. 13. Repeat 8, 11 and 12, if necessary.	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Judging distances.	1. Following traffic control signals. 2. Verbal and nonverbal communication to fellow drivers.	1. Research on driving habits and skills based on: a. Sex b. Age 2. Driver education in the public schools.
1. Distance from curb. 2. Distance of parking space: a. Five feet more than length of automobile b. Six inches to eighteen inches from curb.		1. Parking facilities in urban and suburban areas. 2. Parking problems in housing districts and residential areas.
1. Stopping distances. 2. Turning radius.		

III. APPLICATION

Students should practice backing, parking and turning skills using markers and barricades or cones to lay out course.

IV. EVALUATION CRITERIA GUIDELINE

A. Does student understand the psychology behind good backing and parking procedures?

B. Can student demonstrate proper skills of these maneuvers?

C. Does the student have the proper attitude?

V. SUMMARY

A. Importance of good attitudes.

B. Importance of backing skills.

C. Importance of parking skills.

D. Necessity of being able to maneuver a car.

VI. SUGGESTED TIME and SEQUENCE LISTING

300 minutes . . . Field backing exercises.

60 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Allen, W. A., **Know Your Car,** Chicago: American Technical Society, 1969.

2) Beeler, S. C., **Understanding Your Car,** Bloomington, Ill.: McKnight and McKnight Publishing Company, 1966.

3) **Birds to Beware Of,** Detroit: General Motors Corporation (booklet).

4) **Right Behind the Wheel,** Detroit: General Motors Corporation (booklet).

5) **We Drivers,** Detroit: General Motors Corporation (booklet).

INSTRUCTOR'S UNIT PLAN

Unit 3
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Auto Care and Maintenance**

AIM: To develop student awareness of the major component parts of the automobile and the importance of service and preventive maintenance.

INSTRUCTIONAL AIDS:

Manuals from automobile companies applicable . . . **Chevrolet Automobile Data Book.** Detroit, Michigan 48202: Chevrolet Motor Division, General Motors Corporation.

Films - Automobile Preventive Maintenance Films, Randolph, Wisc. 53956: Educators Progress Service (16 mm).

Charts - Set of 15 Wall Charts, 22"x34", Covering Automobile Systems and Components, Detroit: General Motors Corporation.

Kits - **Service Training Kits.** Detroit: Ford Service Publications, 1970.

EQUIPMENT:

16 mm projector, overhead projector, slide projector and screen

PRIMARY REFERENCES:

1) Allan, W. A., **Know Your Car.** Chicago: American Technical Society, 1969.

2) **Drivers' Manual.** Department of Motor Vehicles from state applicable.

3) **How the Wheels Revolve.** Detroit: General Motors Corporation (booklet).

4) Service Department, Cadillac Motor Car Division, General Motors Corporation, Detroit, Michigan 48232.

I. INTRODUCTION and MOTIVATION

Show charts and illustrations of engines, drive train, instrument panel and chassis. Show charts and illustrations identifying major check points of service.

II. PRESENTATION of INTEGRATED CONCEPTS

	RELATED CONCEPTS	
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Nomenclature	1. Make and model. 2. Engine: a. Horsepower b. Displacement c. Number of cylinders d. Type fuel (octane) 3. Transmission: a. Type b. Service 4. Instrument panel 5. Steering: a. Power b. Manual 6. Brakes: a. Power b. Mechanical or Hydraulic	1. High efficiency of internal combustion engine compared to steam engines. 2. Principle and operation of internal combustion engine. 3. Four-stroke cycle engine. 4. The means of transmitting power to the drive wheels. 5. Braking principles and various brake designs. 6. Discuss and demonstrate principles of friction and inertia.
B. Periodical maintenance	1. Preventive maintenance a. Brakes b. Lights c. Turn signals d. Tires e. Glass & mirrors f. Exhaust system g. Horn h. Crankcase oil i. Steering j. Air cleaner k. Instruments	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Computing horsepower and displacement. 2. Calculating gear ratios and mechanical advantages. 3. Calculation of compression ratios.	1. Advertising materials which describe automotive engine horsepower ratings and comparisons. 2. A close study of advertising techniques to recognize in what ways the consumer is being influenced. 3. Discussion of propaganda techniques and their use in advertising.	1. What practical application was found for horsepower?

III. APPLICATION

A. Student should know the component parts of the automobile.

B. Student should memorize all "check points" of periodical service.

C. Student reports on area of study.

D. Students should make the basic preventive maintenance checks.

IV. EVALUATION CRITERIA GUIDELINE

A. What are the major parts of the automobile?

B. What steps are involved in "pre-trip" inspection?

C. What are some reasons for periodical service and maintenance of automobiles?

V. SUMMARY

A. Reason for having knowledge of vehicle operated.

B. Who and what highway safety depends on.

VI. SUGGESTED TIME and SEQUENCE LISTING

60 minutes . . . Nomenclature.

120 minutes . . . Preventive maintenance.

180 minutes . . . Field (practical application).

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Beeler, S. C., **Understanding Your Car**, Bloomington, Ill.: McKnight & McKnight Publishing Company, 1967.

2) Car Manufacturer's **Shop Manuals** for specific cars.

INSTRUCTOR'S UNIT PLAN

Unit 4
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Straight Trucks**

AIM: To develop knowledge and skill of the correct identification, operation and nomenclature of straight trucks.

INSTRUCTIONAL AIDS:

Slides - Pennsylvania Motor Truck Association, Telegraph Building, Harrisburg, Pennsylvania 17101.

Films - Pennsylvania Motor Truck Association, Telegraph Building, Harrisburg, Pennsylvania 17101 (16 mm).

Film - **A Doctor's Degree in Driving.** Detroit: Chevrolet Motor Division of General Motors Corporation.

Film - **Tomorrow's Drivers.** Detroit: Chevrolet Motor Division of General Motors Corporation.

EQUIPMENT:

16 mm projector, slide projector, screen and straight trucks.

PRIMARY REFERENCES:

1) **Cars & Trucks Publication.** Washington, D. C. 20006: National Automobile Dealers Association, 2000 "K" Street, N. W.

2) **Chevrolet Truck Data Book.** Detroit: Chevrolet Motor Division, General Motors Corporation.

3) **Facts for Drivers.** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

4) Publications, Washington, D. C. 20036: American Trucking Association, Department of Safety, 1616 "P" Street, N. E.

5) **Tire Manual.** Akron 16, Ohio: The Goodyear Tire and Rubber Company.

I. INTRODUCTION and MOTIVATION

A. Show models and illustrations of straight trucks. Show uses of this type truck to develop knowledge of its important needs in industry.

B. Discuss the difference between straight trucks and automobiles.

II. PRESENTATION of INTEGRATED CONCEPTS

		RELATED CONCEPTS
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Identification and nomenclature	1. Make and model a. Uses 2. Transmission: a. 5-speed direct b. 5-speed-2-speed electric 3. Capacity 4. Location of pertinent check points 5. Brakes: a. Air b. Hydraulic 6. Instrument panel 7. Fuel: a. Diesel b. Gas	1. Gear torque converters. 2. Fluid torque converters. 3. Calculating the center of mass of large and small bodies. 4. Review Pascal's law. 5. Calculate the mechanical advantage of hydraulic machines. 6. Comparison of the gas and diesel engines: a. Simplicity of operation of diesel engine. b. Higher efficiency of diesel. c. Use of low grade fuels in diesel engine.
B. General operation	1. Check position and location of truck before starting. 2. Starting truck: a. Check instruments b. Listen for unusual noises	
	3. Shifting patterns. 4. Double clutching. 5. Coordination of steering, acceleration, shifting, (up and down) and braking. 6. Basic driving skills.	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Proper tachometer reading before shifting gears. 2. Comparative cost of diesel engines and gasoline engines: a. Initial costs. b. Operational costs. 3. Calculate personal horsepower by climbing a flight of stairs in a timed experiment.	1. Manual from truck manufacturers applicable. 2. Written paragraph emphasizing comparison and contrast.	1. Application of various sizes of straight trucks. 2. Planned obsolescence in automobiles and trucks.

III. APPLICATION

A. Students practice driving with instructor. (Refer to Units 7, 8, 9, 10, 11 and 12 for exercises.)

B. Students should memorize and become used to examining all component check points of truck periodically.

C. Student reports on driving straight trucks.

IV. EVALUATION CRITERIA GUIDELINE

A. What preventive maintenance is essential to keep the truck operational?

B. What are the basic rules for defensive driving?

C. Identify applications of straight trucks.

D. Field tests of driving skills.

V. SUMMARY

A. Importance of straight trucks.

B. Importance of defensive driving.

C. Reasons for professional drivers.

VI. SUGGESTED TIME and SEQUENCE LISTING

60 minutes . . . Nomenclature.

60 minutes . . . Related concepts.

240 minutes . . . Field and road driving experience.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) ATA, **National Organization of The Trucking Industry in the United States,** Washington, D. C.: The Association, 1960.

2) ATA, "Trucks and the American Economy," **Fortune Magazine,** September 1965, pp. 34-46.

3) Brockway Motor Trucks, **A Glossary of Motor Truck Terminology,** Cortland, N. Y.: Brockway, 1963.

4) Church, D. E., **New Data on Trucks and Trucking in 1963 Census of Transportation.** Speech presented at 24th annual Convention of the Private Truck Council of America, April 4-5, 1963, Washington, D. C.: U. S. Department of Commerce, Bureau of the Census.

5) Driver's examination study booklets and forms from various states.

INSTRUCTOR'S UNIT PLAN

Unit 5
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Orientation and Nomenclature of Tractor-Trailers**

AIM: To provide a knowledge of the responsibility of the professional truck driver.
To provide knowledge of component parts of the tractor-trailer.

INSTRUCTIONAL AIDS:

Drivers' Manuals, General Motors Corporation, Truck and Coach Division, Pontiac, Michigan

EQUIPMENT:

Tractors and trailers.

PRIMARY REFERENCES:

1) **Drivers' Manual**, Downingtown, Pa.: Gindy Manufacturing Corporation.
2) **Drivers' Manual**, Allentown, Pa.: Mack Truck Corporation.
3) **Drivers' Manual**, Truck Companies applicable.
4) **Drivers' Manuals**, Chicago: International Harvester Truck Company.
5) **Pre-Training Data Units**, Atlanta, Ga.: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312.

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning the nomenclature and operation of tractor-trailers through the use of charts, models, manuals and illustrations.

II. PRESENTATION of INTEGRATED CONCEPTS

		RELATED CONCEPTS
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Orientation	1. Importance of training. 2. Requirements of professional driver. 3. Importance of good attitude. 4. Role played by trucks in America's needs.	
B. Nomenclature	1. Make and model: a. Conventional b. Cab-over c. Sleeper cab 2. Engine: a. Make b. Horsepower c. Type fuel 3. Transmission: a. Road Ranger b. Duplex c. Triplex 4. Brakes: a. Air b. Air over hydraulic 5. Fifth Wheel and Trailer "King Pin." 6. Instrument panel. 7. Size and capacity. 8. Air storage tanks.	1. Principles of air brake operation.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Advantages of depth perception. 2. Calculation of operating costs related to capacity. 3. Calculation of volume of rectangular solids.	1. Write articles pertaining to early stages of tractor-trailer development emphasizing the use of historical data and chronological order.	1. Impact of trucks on transportation in the U. S.

III. APPLICATION

A. Student should memorize all component parts of the tractor-trailer.

B. Student reports on areas of study.

C. Students should be aided in the advantages of good attitudes.

IV. EVALUATION CRITERIA GUIDELINE

A. Questions on importance of professional drivers.

B. Questions on component parts of the tractor-trailer.

C. Questions on reasons for good attitudes.

D. Questions on applications of the tractor-trailer for America's needs.

V. SUMMARY

A. Reason for having knowledge of tractor-trailers?

B. Uses of trucks in the field of transportation?

VI. SUGGESTED TIME and SEQUENCE LISTING

90 minutes . . . Orientation.

90 minutes . . . Nomenclature.

180 minutes . . . Field (practical application).

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) National Highway Users Conference, **State Registration Fees and Taxes**, Washington, D. C.: Motor Vehicle Law Service (no date).

2) Northwestern University, **Financing and Forecasting Needs of Motor Carrier Terminals**, Conference Proceedings, Evanston, Ill.: The Transportation Center, 1960.

3) Trinc Associates, **Trinc's Blue Book of the Trucking Industry**, Washington, D. C.: Trinc (no date).

4) U. S. Department of Commerce, **Truck Trailers**, Washington, D. C.: Bureau of Census Industrial Report Series M37L(62)6, August 1962.

INSTRUCTOR'S UNIT PLAN

Unit 6
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Safety and First Aid**

AIM: To provide the professional truck driver with the knowledge of safety and first aid that will enable him to maintain his position as a professional.

INSTRUCTIONAL AIDS:

Film - **First Aid Now,** New Brunswick, N. J.: Johnson & Johnson (16 mm).

Slides - **Safety,** Washington, D. C.: Sponsored by Pure Oil Company, American Trucking Association, 1616 "P" Street, N. E.

EQUIPMENT:

16 mm projector, slide projector, screen, first aid kit and equipment.

PRIMARY REFERENCES:

1) **American Red Cross First Aid Book,** Washington, D. C.: District of Columbia Chapter, Daniels Leonard, Director.

2) **Facts for Drivers,** Washington, D. C.: American Trucking Association, 1616 "P" Street, N. E.

3) **The Motor Carrier and Safety Regulations,** Washington, D. C.: American Trucking Association, 1616 "P" Street, N. E.

I. INTRODUCTION and MOTIVATION

Discuss the industry's safety rules and regulations. Develop student knowledge of accepted first aid procedures in case of an accident. Show film: **First Aid Now** and begin practicing general first aid.

II. PRESENTATION of INTEGRATED CONCEPTS

		RELATED CONCEPTS
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Safety	1. Safe driving rules: a. Physical requirements b. Records kept by driver c. Minimum age d. Required driving skill e. Education f. Under the influence of alcoholic beverages g. Regulations required on pre-trip inspection h. Defensive driving i. Emergency equipment j. Specifications required for hazardous loads k. Knowledge of state and local laws regarding safety	1. Man's potentials without safety rules and regulations.
B. First aid	1. Purpose of first aid. 2. General directions for first aid: a. Bleeding b. Shock c. Use of tourniquets d. Bandaging e. Fractures f. Burns 3. Methods of transportating injured. 4. Artificial respiration.	1. Principles of applying first aid. 2. Basic study of human physiology: a. Human skeleton. b. Human circulatory system. c. Human respiratory system.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
	1. References for Department of Transportation and American Trucking Association manuals.	1. What practical application was found for these safety rules and regulations?
1. Timing of artificial respiration applications. 2. Applying pressure at right time to stop bleeding. 3. Experiments relating respiration and pulse rate to moderate exercise.	1. References that describe these methods, including the **Operators Manual** provided in rental trucks such as Ryder. 2. Handling people in need of first aid 3. How to properly report an accident to the authorities. 4. Gathering pertinent information to assist the authorities in diagnosing the causes of an accident. 5. Fill out report forms provided by motor vehicle departments and insurance companies.	1. First aid programs used by rescue squads and medical infirmaries. 2. The legal problems involved in applying first aid.

III. APPLICATION

A. Students study and memorize safety rules and regulations.

B. Students should be aided in practical first aid applications by use of models.

C. Student reports on research on areas of study.

IV. EVALUATION CRITERIA GUIDELINE

A. Select questions from the Department of Transportation safety regulations.

B. What are the advantages of a safety program?

C. Identify the basic first aid applications all drivers should know.

D. Give students general test on area of safety and first aid.

V. SUMMARY

A. Reason for having knowledge of safety rules.

B. The relationship of safety and first aid programs with the operation of a trucking firm.

VI. SUGGESTED TIME and SEQUENCE LISTING

40 minutes . . . Film and discussion.

180 minutes . . . Safety and first aid practice.

140 minutes . . . Related information in science, math, communications and social studies.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) **Careers in Highway Traffic Safety.** Washington, D. C.: National Commission on Safety Education, 1958.

2) First aid brochures from local Red Cross Chapters.

3) **Guide to Traffic Safety Literature.** Chicago: National Safety Council, 1955.

4) **Traffic Control and Roadway Elements: Their Relationship to Highway Safety.** Washington, D. C.: Automotive Safety Foundation, 1963.

5) **Traffic Safety.** Chicago: National Safety Council (no date).

6) U. S. Congress, **The Federal Role in Highway Safety.** 86th Congress, 1st Session, House Document Number 93, Washington, D. C.: Government Printing Office, 1959.

INSTRUCTOR'S UNIT PLAN

Unit 7
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Coupling-Uncoupling and Pretrip Inspection**

AIM: To develop student awareness of the correct procedures for hooking-up and unhooking the tractor-trailer unit. To develop knowledge of the correct procedure of pretrip inspection.

INSTRUCTIONAL AIDS:

Coupling and Uncoupling Explanation Form . . . National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312, Atlanta, Ga. 30305.

Transparency - Coupling devices and procedures.

EQUIPMENT:

Tractor-trailer, model of tractor-trailer, overhead projector and screen.

PRIMARY REFERENCES:

1) **Motor Carriers Safety Regulations, The,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street.

2) **Truck Driver's Handbook,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street.

I. INTRODUCTION and MOTIVATION

Show students the correct procedure for coupling and uncoupling by use of models. Show students procedures of pretrip inspection by use of models.

II. PRESENTATION of INTEGRATED CONCEPTS

	RELATED CONCEPTS	
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Coupling	1. Air pressure. 2. Line up 5th wheel with King pin. 3. Check hazards. 4. 5th wheel jaws. 5. Connections: a. Emergency air line b. Light cord c. Service air line 6. Protection valve. 7. Hand valve lever. 8. Backing under trailer. 9. Check lock. 10. Trailer supports.	1. Hazards of incorrect methods of coupling. 2. Compressed air characteristics. 3. Principles of valve operation. 4. Basic principles of air systems. 5. Basic principles of electrical systems.
B. Uncoupling	1. Position unit. 2. Protection valve. 3. Secure unit. 4. Trailer supports. 5. Disconnections: a. Emergency air line b. Light cord c. Service line 6. 5th wheel lock. 7. Separating unit.	
C. Pretrip inspection	1. Precrank check. 2. Crank check. 3. Lights. 4. General check. 5. Brake and coupling check.	1. Potential safety precautions using pretrip methods.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Proper alignment of tractor and trailer. 2. Calculation of pressure in pounds per unit area. 3. Calculations in electric circuitry. a. Ohm's Law. b. Power measurement.	1. Stressing specific points in the coupling-uncoupling procedure. 2. Develop a paragraph explaining the coupling (uncoupling) procedure emphasizing the need to organize according to the steps and the order of those steps of the operation.	1. What practical device was found for hooking the tractor to trailer? 2. Review of accidents caused by trailer uncoupling.

III. APPLICATION

A. Student should be familiar with procedures for coupling, uncoupling and pretrip inspection.

B. Student should practice procedures with tractor-trailer unit.

IV. EVALUATION CRITERIA GUIDELINE

A. Test student on coupling-uncoupling with use of instructor's score sheet.

B. Test student on pretrip inspection with use of instructor's score sheet.

V. SUMMARY

Importance of correct procedures for safety reasons.

VI. SUGGESTED TIME and SEQUENCE LISTING

90 minutes . . . Related concepts.

270 minutes . . . Field experiences.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Fruehauf Corporation, **Annual Report 1964.** Detroit: Fruehauf Corporation, 1964.

2) Fruehauf Corporation, **Materials to Market,** Detroit: Fruehauf Corporation (no date).

3) **New York Times.** Section II, May 12, 1963.

INSTRUCTOR'S UNIT PLAN

Unit 8
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Primary Driving Exercises**

AIM: To familiarize the student with the correct operation of the tractor-trailer.

INSTRUCTIONAL AIDS:

Film - **Champions of the Highway,** Milwaukee, Wisc.: Allstate Insurance Company (16 mm, sound, 27 minutes).

Chart - Showing shifting patterns.

Photos - **Truck Photos for Schools,** Washington, D. C.: American Trucking Association.

EQUIPMENT:

16 mm projector, screen and tractor-trailer.

PRIMARY REFERENCES:

1) **Shifting Patterns,** Atlanta, Georgia 30305: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312.

2) **Truck Driver Training Book,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning the operation of the tractor-trailer through the use of instructional aids and models. Show film listed and discuss what drivers need to know about handling the truck.

II. PRESENTATION of INTEGRATED CONCEPTS

	RELATED CONCEPTS	
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Shifting patterns	1. Road ranger. 2. Duplex. 3. Triplex. 4. Up shifting and down shifting. 5. Use of tachometer.	1. Principles of gears and gear trains. 2. Use of stroboscope to determine rpm's.
B. Operating instructions	1. Starting engine. 2. Putting vehicle in motion. 3. Stopping the vehicle. 4. Use of mirrors. 5. Parking procedures. 6. Double clutching. 7. Steering.	1. Practical application of coordination in shifting. 2. Using down shift for braking. 3. Function of clutch in the power train.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Tachometer, what it is and how it is used. 2. Experiment and demonstrate with various gear combinations. 3. Calculate rpm's of rotating wheels. 4. Calculate the mechanical advantage of gear systems.	1. Develop vocabulary of driving mechanics.	1. What practical application was found for each driving device?

III. APPLICATION

A. Students should practice driving with tractor only.

B. Students should practice driving tractor and trailer when qualified.

IV. EVALUATION CRITERIA GUIDELINE

A. Instructor check student's attitude and psychological reactions to various driving tasks.

B. Instructor check students' coordination.

C. Instructor check students' progress.

V. SUMMARY

A. Importance of good coordination.

B. Importance of good attitude.

C. Importance of safe driving rules and practices.

VI. SUGGESTED TIME and SEQUENCE LISTING

60 minutes . . . Related concepts.

300 minutes . . . Field experiences.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Chevrolet Motors, **Medium and Heavy-Duty Diesel Models**, Detroit: Chevrolet Motor Division of General Motors Corporation, review of 1965 diesel trucks.

2) Local truck manufacturer or dealer's brochures on new trucks.

3) **State Motor Vehicle Size and Weight Laws**, Washington, D. C.: Loose-leaf, Motor Vehicle Law Series, National Highway Users Conference (no date).

INSTRUCTOR'S UNIT PLAN

Unit 9
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Forward and Backing Exercises**

AIM: To develop knowledge and skill to maneuver vehicle backward into a close space, such as city deliveries, parking in terminals or a truck-stop yard.

INSTRUCTIONAL AIDS:

Field Skill Exercises Diagram and Illustrations, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312, Atlanta, Ga. 30305.

EQUIPMENT:

Barricades, barrels, tractor-trailer and boundary markers.

PRIMARY REFERENCES:

1) **Facts for Drivers**, Washington, D. C. 20036: American Trucking Association, 1616 "P" Street (booklet).

2) **Truck Driver Training**, Washington, D. C. 20036: American Trucking Association, 1616 "P" Street (booklet).

I. INTRODUCTION and MOTIVATION

Instructor should demonstrate all exercises of backing the tractor-trailer.

II. PRESENTATION of INTEGRATED CONCEPTS

RELATED CONCEPTS

INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Forward and Backing Exercises	1. Walk students through course and explain variances and reasons for learning to handle a rig under these conditions. 2. Demonstrations: (See instructions for skill exercises plus diagrams for setting up the field). a. Forward zig-zag b. Forward through offset alley c. Forward clearance through 100' alley d. Overhead clearance e. Backward zig-zag (or serpentine) f. Forward stop and backward clearance through 100' alley g. Jack-knife parking h. Parking in 10' alley 3. Some driving "tricks" or aids that may facilitate backing exercises.	1. Exercises can be simulated with toy tractor and trailer.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Space limitations in each maneuver. 2. Approach angles. 3. Estimating clearance.	1. References that describe these maneuvers. 2. Reading and following instructions and diagrams. 3. Write a set of instructions and see if they can be followed.	1. Programs such as "Roadeos," made by American Trucking Association Safety Department. 2. Driver liability.

III. APPLICATION

A. Students should know reasons for exercises and for developing high degree of skill in these exercises.

B. Students should observe techniques of skill in exercises.

IV. EVALUATION CRITERIA GUIDELINE

A. What precautions should be taken when backing into an alley?

B. How can overhead clearance be estimated?

V. SUMMARY

Forward and backward control of trailers is quite different. It is important to practice backing exercises well to develop confidence in this operation.

VI. SUGGESTED TIME and SEQUENCE LISTING

280 minutes . . . Demonstrations.

80 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

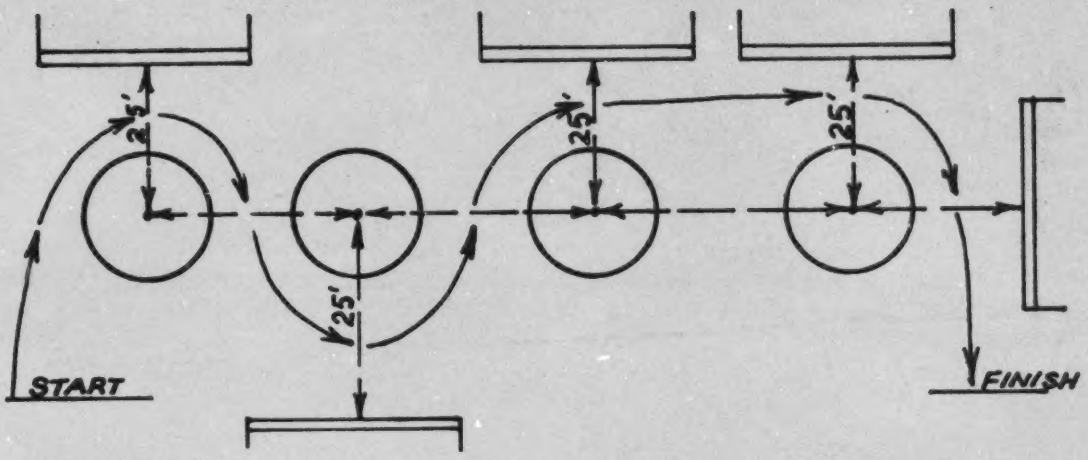
1) See National Professional Truck Driver Training Booklets, Atlanta, Ga. NPTDT, 1970.

2) Refer to T-IV-9a for charts or layout of courses.

FORM S-3 . . . 18th Revision . . . August 1, 1962
INSTRUCTIONS FOR SKILL EXERCISES PLUS
A DIAGRAM FOR SETTING UP THE FIELD

A. FORWARD ZIG-ZAG

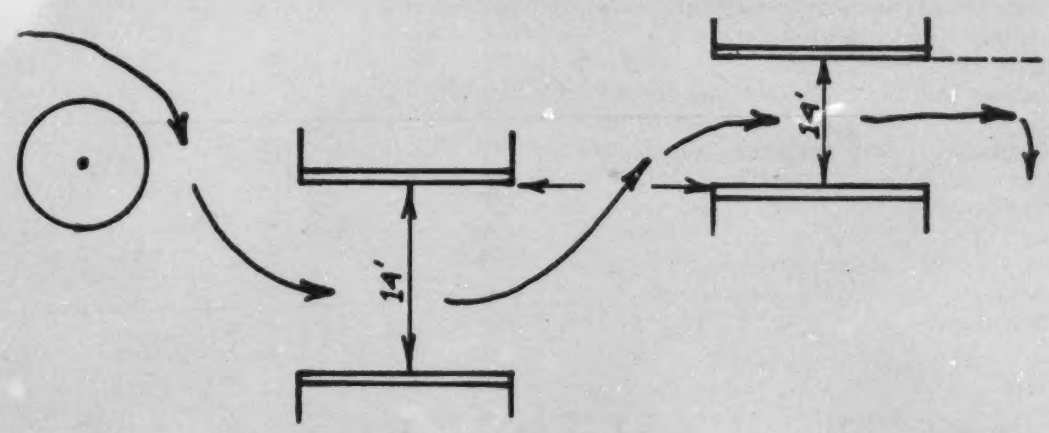
The object of this test is to determine the skill of the driver in maneuvering around several stationary objects such as: other units parked in a terminal lot or barriers placed on the highway to protect road work. There are 3 barrels placed in a straight line 34' apart. To limit the space in which to maneuver, there are 3 barricades placed 20' to the side of the barrels. These barricades represent a marker line running the length of the barrels and the driver must not hit the barrels, barricades or run over the marker line these barricades represent. In addition, after leaving forward zig-zag, the student makes a right hand turn. A fourth barrel is placed in line with the above mentioned three barrels, also two barricades.



The student is to drive around the barrels as shown by the arrows. He will be scored according to Exercise "A", Form DT-3.

B. FORWARD THROUGH OFFSET ALLEY

Making left and right turns in a congested area is a common occurrence and the student must be aware of how the trailer pulls over to the side much farther then the tractor when turning. Here again, mirrors are important. Use them. Four barricades are used for this exercise.

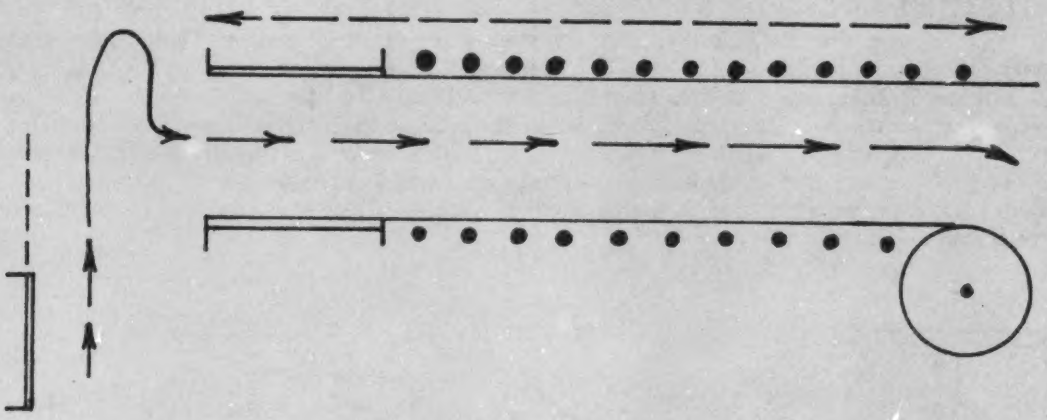


You will be scored according to Exercise "B", Form DT-3.

T-IV-9a

C. FORWARD CLEARANCE THROUGH 100' ALLEY.

This alley consists of 8 balls 2½" in diameter, placed in a straight line on each side of the alley. The balls are held off the ground by coasters. The alley is 9' wide to the inside of the balls giving the unit 6" of clearance on each side. The balls are 14' apart and at the entrance of the alley there are two stations 5' high.



This test is to determine the skill of the driver in placing his unit within close limits while driving in a straight line. This is a common occurrence while driving. Many highways are 18' wide giving 9' in each lane. In making deliveries you will have to drive down an alley or between buildings with not more than 9' of clearance.

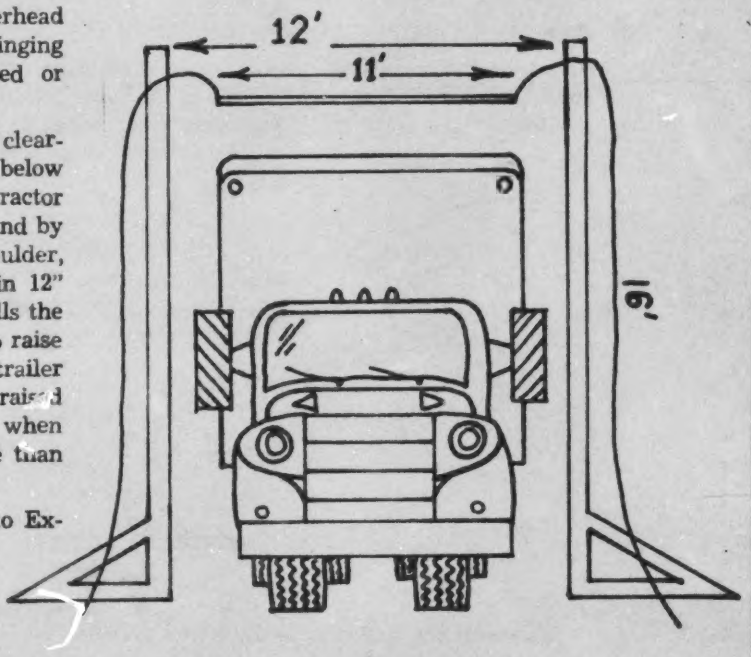
Your fender mirrors are a great aid in this exercise as you can see the tractor duals and the trailer wheels. **Use your mirrors.** This is also true in Exercise "A" and "B".

D. OVERHEAD CLEARANCE

This test is designed to develop in the driver, an awareness of the height of his unit plus the ability to judge that height within 6". The overhead clearance is made of two side posts with a swinging bar between the posts which can be raised or lowered as desired.

As the student approaches the overhead clearance, the bar is lowered to a point somewhere below the top of the trailer. When the front of the tractor is up to the posts, the driver opens his door, and by looking back out of the door over his **right** shoulder, he pulls the front of the trailer up to within 12" of the bar without stopping again. He then tells the two men standing at the side posts how far to raise the bar so that it will clear the top of the trailer by not more than 6". He may have the bar raised or lowered as many times as he wishes but when he drives through, the bar must not be more than 6" above the highest point on the trailer.

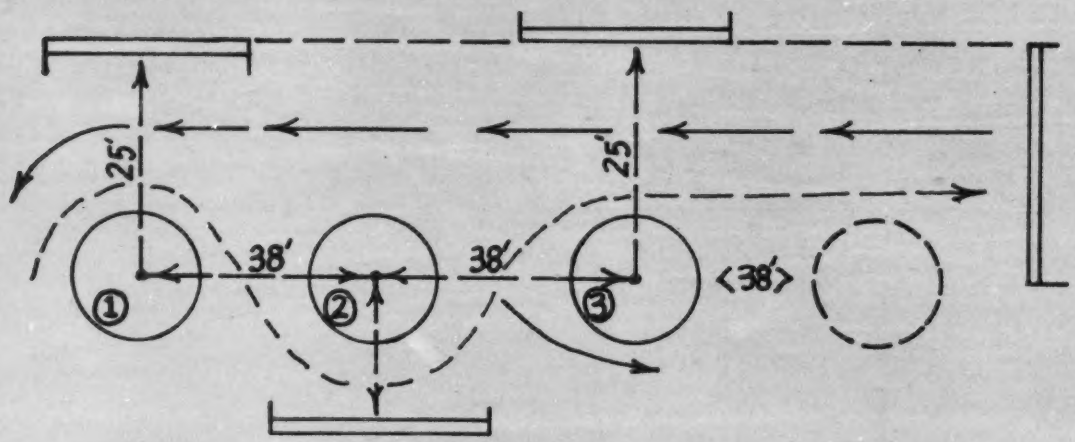
The student will be scored according to Exercise "D", Form DT-3.



The above four exercises are run at one time and are referred to as the "Forward Exercises", as they are all run in a forward direction. They should be set up in such a way as to permit driving from one right on to the next. The rest of the exercises are backing maneuvers but include a forward stop under Exercise "F".

E. BACKWARD ZIG-ZAG or SERPENTINE

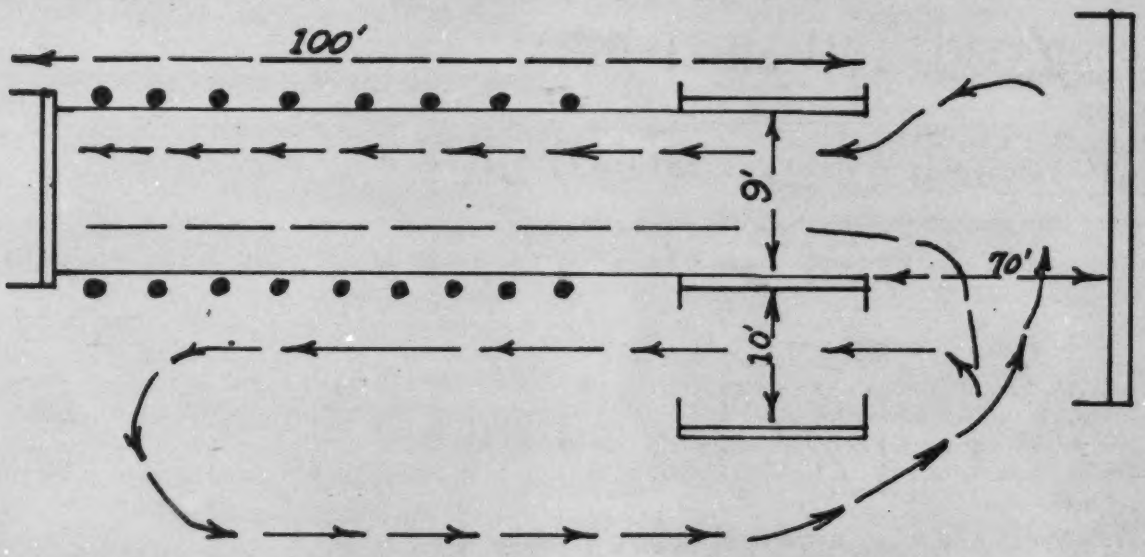
The purpose of this test is the same as the forward zig-zag except, of course, you are backing instead of going forward. Understanding how to place the back of your trailer wherever you want it is a great help to you in your driving career.



Starting back, the steering wheel is turned to the right to get the trailer at the proper angle to go between the first two barrels. Then straighten up and go straight back until the right trailer wheel is approximately 3' in front of the second barrel. Cut hard to the left in order to swing the trailer around the center barrel. As soon as the trailer approaches a position just before being in line with the line of barrels, cut back to the right to get the proper angle for the trailer to go between the second and third barrels. The units must not hit the barricades or go over the line represented by the barricades.

You will be scored according to Exercise "E", Form DT-3.

F. FORWARD STOP and BACKWARD CLEARANCE THROUGH 100' ALLEY



This exercise develops skill in doing two different things:

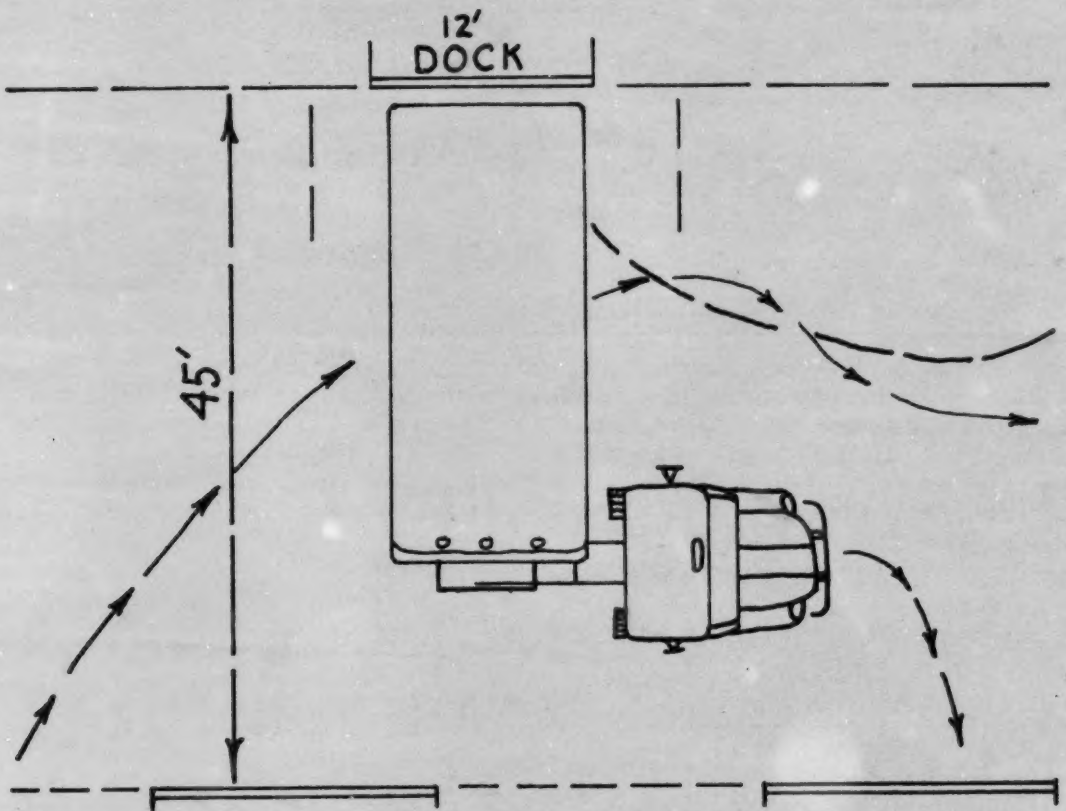
1. Stopping the unit within close limits at the front.
2. Backing the unit in a straight line using only the mirrors.

This has many practical applications as there are times when it is necessary to back by the mirrors. After leaving the alley, the student has to pull forward between two barricades; also the student is limited as to how far back he can go after leaving the alley.

The student pulls into the alley and stops with his front bumper within 6" of the front barricade. He backs out using **only** his mirrors until he is stopped by a barricade limiting his backward movement, then pulls forward between the two barricades to the left of the alley.

You will be scored according to Exercise "F", Form DT-3.

G. JACKKNIFE PARKING



This exercise teaches two things at the same time:

1. The student is being taught to park parallel to a curb or dock so that a side door on the trailer may be used for unloading.
2. He is being taught to back up to a dock as in the 10' alley but with his tractor at right angles to the trailer.

A dock on a narrow street has to be approached like this or we would block the street. The student is to back into the parallel parking and stop with his trailer within 12" of the back barricade. Plus being required to be within 12" of the barricade, the student wants to be in a square position. For example, 12"and 12', 11" and 11", 10" and 10", etc. If he is over 12" away, he has to get out, look, get back in and try again.

You will be scored according to Exercise "G", Form DT-3.

H. PARKING IN 10' ALLEY

Many times you will have to back up to a dock between two other trailers. This exercise will develop skill in making this maneuver. The alley is 10' wide and 20' long. This represents two trailers parked 10' apart with a dock at the rear.

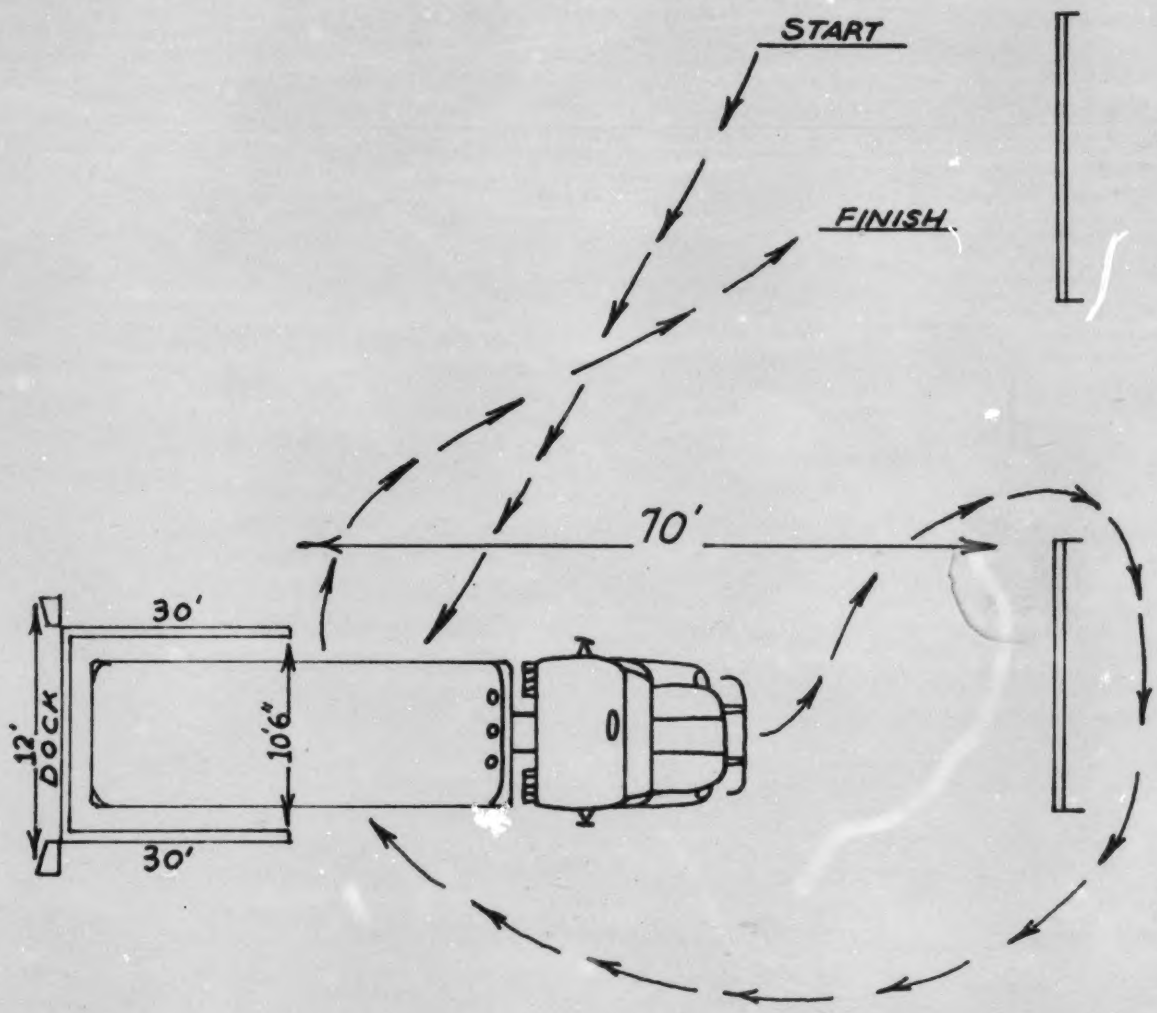
The student will pull ahead and to the left of the alley. Starting back, he will bring his unit into the alley in a slight curve. He will stop with the rear of his trailer within 12" of the back barricade and not nearer than 6" to either side of the alley. The student is measured from left front and left rear sides and these measurements should be the same. For example, 7" and 7", 8" and 8", 9" and 9", etc.

I. Here we have twelve items, any one of which can be charged against the student as he attempts any of these exercises.

They are self-explanatory and can be used any time they apply to the situation at hand. Your attention is called to the fact that any object hit in these exercises is charged against the driver at the rate of 5, 10 or 20 points per hit. A pull up or back up is charged by the scale which is:

PULL UP or BACK UP:	1	2	3	4	5	6	7	8
POINTS:	0	1	2	4	8	16	32	64

50 points is a maximum on any one of the above described exercises, also 5 minutes is the maximum time limit. If you should run overtime before the exercise is completed, you will, of course, lose the exercise.



INSTRUCTOR'S UNIT PLAN

Unit 10
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Backward Serpentine**

AIM: To develop skill to maneuver vehicle in and out of tight places in backward motion.

INSTRUCTIONAL AIDS:

Instructions for Skill Exercises Series, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312, Atlanta, Georgia 30305.

EQUIPMENT:

Barricades, markers, tractor and trailer.

PRIMARY REFERENCES:

1) **Facts for Drivers,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

2) See attached diagram and instructions.

I. INTRODUCTION and MOTIVATION

Students should be alerted to the amount of damage that can be caused by improper backing around objects in tight places.

II. PRESENTATION of INTEGRATED CONCEPTS

Refer to Unit 8 for identification of technical and related concepts.

III. APPLICATION

Students will spend four hours in the field practicing the serpentine exercises.

IV. EVALUATION CRITERIA GUIDELINE

Performance of student.

V. SUMMARY

Serpentine backing is one of the most common used backing exercises and all drivers should be competent in this exercise.

VI. SUGGESTED TIME and SEQUENCE LISTING

240 minutes . . . Field practice.

120 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) See National Professional Truck Driver Training Booklets, Atlanta, Georgia: NPTDT, 1970.

2) Refer to T-IV-9a for charts or layout of courses.

INSTRUCTOR'S UNIT PLAN

Unit 11
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **30 Foot Alley Field Practice**

AIM: To develop skill in backing a trailer or straight truck into a 30' alley.

INSTRUCTIONAL AIDS:

Instructions for Skill Exercises Series, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312, Atlanta, Georgia 30305.

EQUIPMENT:

Field markers, flags, straight trucks, tractors and trailers.

PRIMARY REFERENCES:

1) See attached diagram and instructions for backing into a 30' alley.

I. INTRODUCTION and MOTIVATION

Students should be alerted to the amount of damage that can be caused by improper backing of trailers and large straight trucks into alleys. Review liability coverage for this type of situation.

II. PRESENTATION of INTEGRATED CONCEPTS

Refer to Unit 8 for identification of technical and related concepts.

III. APPLICATION

Students will spend a minimum of four hours in the field practicing the 30' alley procedures.

IV. EVALUATION CRITERIA GUIDELINE

Performance of the driver.

V. SUMMARY

Drivers need to be competent in backing into a 30' alley and need to develop skill in this maneuver.

VI. SUGGESTED TIME and SEQUENCE LISTING

240 minutes . . . Field practice.

120 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) See National Professional Truck Driver Training Booklets, Atlanta, Georgia: NPTDT, 1970.

2) Refer to T-IV-9a for charts or layout of courses.

INSTRUCTOR'S UNIT PLAN

Unit 12
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **100' Alley Exercises**

AIM: Develop ability to steer and judge distances at all points on the vehicle while backing in a continuous motion through a confined space.

INSTRUCTIONAL AIDS:

Instructions for Skill Exercises Series, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312, Atlanta, Georgia 30305.

EQUIPMENT:

Barricades, markers, tractor and trailer.

PRIMARY REFERENCES:

1) **Facts for Drivers,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

2) See attached diagram and instructions.

I. INTRODUCTION and MOTIVATION

Students should be alerted to the amount of damage that can be caused by improper backing around objects in tight places.

II. PRESENTATION of INTEGRATED CONCEPTS

Refer to Unit 8 for identification of technical and related concepts.

III. APPLICATION

Students will spend four hours in the field practicing the sepentine exercises.

IV. EVALUATION CRITERIA GUIDELINE

Performance of student.

V. SUMMARY

Drivers should be competent in backing a trailer into a 100' alley using caution not to cause damage to either the truck or alley walls.

VI. SUGGESTED TIME and SEQUENCE LISTING

240 minutes . . . Field practice.

120 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) See National Professional Truck Driver Training Booklets, Atlanta, Georgia: NPTDT, 1970.

2) Refer to T-IV-9a for charts or layout of courses.

INSTRUCTOR'S UNIT PLAN

Unit 13
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Jack-Knife Parking**

AIM: Develop skill to back up to a dock with the tractor jack-knifed so as not to block a narrow street.

INSTRUCTIONAL AIDS:

Instructions for Skill Exercises Series, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite, 312, Atlanta, Georgia 30305.

EQUIPMENT:

Barricades, markers, tractor and trailer.

PRIMARY REFERENCES:

1) **Facts for Drivers.** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

2) See attached diagram and instructions.

I. INTRODUCTION and MOTIVATION

Students should be alerted to the amount of damage that can be caused by improper backing around objects in tight places. Care should also be taken to avoid blocking traffic while parked.

II. PRESENTATION of INTEGRATED CONCEPTS

Refer to Unit 8 for identification of technical and related concepts.

III. APPLICATION

Students will spend four hours in the field practicing the serpentine exercises.

IV. EVALUATION CRITERIA GUIDELINE

Performance of student.

V. SUMMARY

Drivers should be courteous to other drivers and not block regular traffic. Jack-knife parking skills need to be developed to place the tractor-trailer combination into a restricted area.

VI. SUGGESTED TIME and SEQUENCE LISTING

240 minutes . . . Field practice.

120 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) See National Professional Truck Driver Training Booklets, Atlanta, Georgia: NPTDT, 1970.

2) Refer to T-IV-9a for charts or layout of courses.

INSTRUCTOR'S UNIT PLAN

Unit 14
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Driver's Log Books**

AIM: To develop student awareness and skill in properly maintaining daily logs.

INSTRUCTIONAL AIDS:

Driver's Daily Log Talkographic Flip Chart. Worth, Ill. 60482: Armour and Company, Automotive Studio, 10940 Depot Street.

EQUIPMENT:

Log Books-Form MCS-59 (See attached).

PRIMARY REFERENCES:

1) **Motor Carriers Safety Regulations, The.** Section 395.8, Washington, D. C. 20036: American Trucking Association, 1616 "P" Street.

I. INTRODUCTION and MOTIVATION

Student should be alerted to the necessity of maintaining daily logs as set forth by the Department of Transportation.

II. PRESENTATION of INTEGRATED CONCEPTS

	RELATED CONCEPTS	
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Driver's daily logs	1. Driver's entries 2. Date 3. Total mileage 4. Vehicle identification 5. Name of carrier 6. Driver's signature 7. Home terminal 8. Time base to be used 9. Off-duty time 10. Sleeper birth 11. Driving 12. On duty not driving 13. Remarks 14. Total hours 15. Origin and destination 16. Filing driver's logs 17. Preservation of driver's logs 18. Driver's logs, when not required	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Accurate calculation of time for each phase. 2. Computing mileages and driving times for trips.	1. References from U. S. Department of Transportation, Federal Highway Administration. 2. Practice in accurately making entries in the driver's daily log. 3. Reading to discover reasons for keeping a log and penal ties involved with not keeping or falsifying.	1. What practical application was found for daily logs? 2. Union control of driving time for tractor-trailers.

III. APPLICATION

Students should practice filling out daily logs accurately.

IV. EVALUATION CRITERIA GUIDELINE

A. Student's knowledge of filling out daily logs.

B. Why are daily logs required of drivers?

C. How does a motor carrier log compare with a ship's log? Airplane pilot's log book?

V. SUMMARY

Records of driver's daily schedule and driving time is required by ICC for a number of purposes. It is important that this information is recorded accurately and consistently.

VI. SUGGESTED TIME and SEQUENCE LISTING

180 minutes . . . Related concepts.

180 minutes . . . Practice filling out daily logs.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

DRIVER'S DAILY VEHICLE CONDITION REPORT

TO BE COMPLETED DAILY IN ACCORDANCE WITH RULE 396.7 OF SAFETY REGULATIONS PRESCRIBED BY THE BUREAU OF MOTOR CARRIERS SAFETY, DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

OWNER'S NAME _____ VEHICLE NUMBER _____

DRIVER _____ DATE _____

ITEMS TO CHECK	DRIVERS REPORT	MECHANICS REPORT
BEFORE STARTING ENGINE		
OIL, IF ADDED INSERT NO. QTS.		
GAS, IF ADDED INSERT NO. GALS.		
WATER		
BRAKE LINES TO TRAILER		
ELECTRIC LINES TO TRAILER		
DRIVE LINE		
COUPLING DEVICES		
TIRES & WHEELS		
SPRINGS		
BODY		
GLASS		
EMERGENCY EQUIPMENT		
TORCHES, LANTERNS, OR REFLECTORS		
FUSEES		
FLAGS		
SPARE BULBS		
FUSES		
FIRE EXTINGUISHER		
TIRE CHAINS		
AFTER STARTING ENGINE (OUT OF CAB)		
FUEL SYSTEM		
COOLING SYSTEM		
ENGINE		
LEAKS		
LIGHTS, HEAD		
TAIL		
STOP AND TURN		
CLEARANCE AND MARKER		
REFLECTORS		
AFTER STARTING ENGINE (IN CAB)		
AIR PRESSURE WARNING DEVICE		
OIL PRESSURE		
AMMETER		
HORN		
WINDSHIELD WIPERS		
PARKING BRAKES		
CLUTCH		
TRANSMISSION		
REAR VISION MIRRORS		
STEERING		
SERVICE BRAKES		
SPEEDOMETER		
OTHER ITEMS		

DAILY MILEAGE RECORD

SPEEDOMETER READING END OF DAY _____

SPEEDOMETER READING START OF DAY _____

TOTAL MILES DRIVEN TODAY _____

DATE OF TRAILER LUBRICATION IF ON THIS TRIP. _____

I MADE INSPECTION AS REQUIRED ON LISTED ITEMS

DRIVER'S SIGNATURE: _____

I CERTIFY THAT REPAIRS CHECKED WERE MADE TODAY: DATE _____

MECHANIC'S SIGNATURE: _____

REPAIR ORDER NO.: _____

DRIVER: USE √ IF ITEM IS SATISFACTORY
USE X IF ITEM IS NOT SATISFACTORY

MECHANIC: USE √ WHEN ITEM IS CORRECTED AND SIGN YOUR INITIALS.

REMARKS:

Form – BMCS – 59 – Prescribed by the
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Rev. '69

DRIVER'S DAILY LOG

(One calendar day - 24 hours)

Time standard of home terminal

ORIGINAL – Not to be submitted unless requested

DUPLICATE – Submit to employer within 13 days unless otherwise specified

(MONTH) (DAY) (YEAR)

(TOTAL MILEAGE TODAY)

I certify these entries are true and correct

Vehicle Numbers (Show each unit)

(TOTAL MILES DRIVING TODAY)

(DRIVER'S SIGNATURE IN FULL)

(NAME OF CARRIER)

(NAME OF CO-DRIVER)

(MAIN OFFICE ADDRESS)

(HOME TERMINAL ADDRESS)

MID-NIGHT 1 2 3 4 5 6 7 8 9 10 11 NOON 1 2 3 4 5 6 7 8 9 10 11 MID-NIGHT

TOTAL HOURS

1: OFF DUTY

2: SLEEPER BERTH

3: DRIVING

4: ON DUTY (Not Driving)

REMARKS

TOT. HRS.

SHOULD BE 24

SHIPPING DOCUMENT NO.

UTILITY ONLY

Shipping document, manifest number, or name of shipper & commodity. Information required by Section 395.8(i)

Check the time and enter the name of place you reported and were released from work and where and when each change of duty occurred. Explain excess hours Section 395.8(i)

FROM: (STARTING POINT OR PLACE)

TO: (DESTINATION OR TURN AROUND POINT OR PLACE)

USE TIME STANDARD AT HOME TERMINAL

HOURS RECAP - 7 DAYS / 70 HOURS

(A) Tot. Hrs. On Duty (Col. 3 of Hours Recap) Last 6 Days Inc. Today

(B) Tot. Hrs. On Duty (Col. 4 of Hours Recap) Last 7 Days Inc. Today

(B) Eligible Hrs. Tomorrow 70 Hours Part C of Hrs. Recap

HOURS RECAP - 8 DAYS / 80 HOURS

(C) Tot. Hrs. On Duty (Col. 4 of Hours Recap) Last 8 Days Inc. Today

(D) Eligible Hrs. Tomorrow 80 Hours Part C of Hrs. Recap

(E) Log No. See Instructions

INSTRUCTOR'S UNIT PLAN

Unit 15
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Department of Transportation Rules and Regulations on Dangerous Articles**

AIM: To develop student awareness of the rules and regulations set forth by the Department of Transportation for the professional truck driver on dangerous articles.

INSTRUCTIONAL AIDS:

Dangerous articles, placards and labels, American Trucking Association, 1616 "P" Street, N. E., Washington, D. C. 20036.

PRIMARY REFERENCES:

1) **Dangerous Articles Handling.** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E. (See attached).

2) **Motor Carriers Safety Regulations, The.** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

I. INTRODUCTION and MOTIVATION

Develop student knowledge of dangerous article rules by displaying placards and labels.

II. PRESENTATION of INTEGRATED CONCEPTS

RELATED CONCEPTS

INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Dangerous articles	1. Classes. 2. Labels: a. Requirements b. Uses c. Exemptions 3. Placards: a. Requirements b. Uses 4. Shipment markings 5. Personnel instructions 6. Handling 7. Identification 8. Road driver rules	1. Complexity in the nature of the hazards. 2. Introductory unit on basic chemistry: a. Nature of chemical reactions b. Acids, bases and neutralization reactions c. Handling of volatiles d. Nature of explosive reactions 3. Radioactivity: a. Warnings b. Safeguards

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Proper spacing of loading dangerous articles.	1. Research for references that describe these articles to determine why they are dangerous. 2. Reading and interpreting personnel instructions concerning handling of dangerous articles.	1. Dangerous article safety programs used by companies applicable.

III. APPLICATION

A. Students need to familiarize themselves with the rules and regulations identified in this unit.

B. Students should develop skill in recognizing placards and labels and in handling marked freight.

IV. EVALUATION CRITERIA GUIDELINE

A. How can a driver determine the nature of a load by checking the manifest?

B. Identify basic types and uses of placarding and labels.

C. What constitutes dangerous articles according to ICC and DOT?

V. SUMMARY

A. Importance of dangerous article knowledge.

B. Importance of safety procedures for handling dangerous articles.

VI. SUGGESTED TIME and SEQUENCE LISTING

180 minutes . . . Related concepts.

180 minutes . . . Studying and practicing marking and handling dangerous freight.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) American Association of Port Authorities, **Program for Hazardous Cargo Safety.** Annual Report of Committee IX - Hazardous Cargo, August 22, 1962.

2) Giorgi, J. L. and Nuzzi, D., **How Secure My Facility (The Transportation of Dangerous Articles).** Entry Paper for the IBTTA 1965 Past President's Award Competition, New York: Port of New York Authority, 1965.

3) **Guide to Traffic Safety Literature.** Chicago: National Safety Council, 1955 (request current issue).

4) Traffic Institute, **Traffic Accident Investigator's Manual for Police.** Evanston, Ill.: Northwestern University, 1962.

INSTRUCTOR'S UNIT PLAN

Unit 16
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **General Maintenance**

AIM: To develop student awareness of the importance of maintaining their vehicle. To develop basic maintenance skills.

INSTRUCTIONAL AIDS:

Charts - **Detroit Diesel Engine Instruction Charts,** 35"x46" charts in sets of 12 each, Set numbers (22SE94), (22SE92), (22SE95), (22SE93) and (22SE97), Detroit: Detroit Diesel Engine Division of General Motors Corporation.

Filmstrip - **Engine Tune-Up Procedures,** Numbers (25SE19), (25SE20), (25SE23), (25SE26), (25SE27), (25SE29), (25SE30), (25SE33) and (25SE36), Detroit: Detroit Diesel Engine Division of General Motors Corporation.

EQUIPMENT:

Tractor and trailer, diesel and gasoline engines.

PRIMARY REFERENCES:

1) **Care and Service of Truck Tires,** New York: Rubber Manufacturer's Association.

2) **General Maintenance Manual for Truck Drivers,** Atlanta, Georgia 30305: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E.

3) Manuals from truck manufacturers applicable.

4) **Tune-Up, Troubleshooting and Maintenance Information (22SE44),** Detroit: Detroit Diesel Division of General Motors Corporation (booklet).

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning the necessity of preventive and general maintenance knowledge of the truck.

II. PRESENTATION of INTEGRATED CONCEPTS

	RELATED CONCEPTS	
INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. General maintenance	1. General responsibility: a. Recognize mechanical defects. b. Abuse of equipment. c. Handling of road failure. d. Pretrip inspection. e. Good relations with mechanic. 2. Engine: a. Lubrication. b. Cooling system. c. Fuel and exhaust system. d. Electrical system. 3. The power transmission system. 4. Braking system. 5. Steering. 6. Wheels and tires 7. Fifth wheel and trailer assembly.	1. Potential hazards of poor maintenance. 2. Principles of friction and wear. 3. Diesel engine combustion theory. 4. Principles of air, hydraulic and electric brakes. 5. Tire design and operation. 6. Power transmission through gears, pulleys, chains, belts and shafts.

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
1. Capacities of various systems. 2. Cost of neglectful maintenance. 3. Obtaining specifications on engine systems. 4. Tire size and load factors. 5. Gross weight and net weight.	1. Manuals and references that supply basic data for maintaining vehicles. 2. Getting along with fellow workers. 3. Reading diagrams showing engine system theory and operation. 4. Oral and written explanations of mechanical malfunctions. 5. How to properly report a mechanical defect. 6. Understanding of the inter-dependency of mechanic and driver and development of ways of communication to strengthen the relationship.	1. Practical application of maintenance programs of trucking firms. 2. Organization of maintenance shop and facilities. 3. Investments in fleet ownership compared to leasing or for hire vehicles.

III. APPLICATION

Students need to gain practical experiences with general maintenance procedures. The class should be divided into groups of two or three and assigned to selected truck engines and power train units for applying general maintenance.

IV. EVALUATION CRITERIA GUIDELINE

A. What are necessities of preventive maintenance?

B. Describe common checking procedures for analyzing or identifying mechanical defects.

C. What are capacities of cooling systems, transmissions and differentials?

D. How often should tractors be maintained?

V. SUMMARY

A. Importance of general maintenance for safety and economy.

VI. SUGGESTED TIME and SEQUENCE LISTING

120 minutes . . . Related concepts.

240 minutes . . . Field and shop practice.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Detroit Diesel Engine Booklets:
   A. **Facilities Planning Manual.**
   B. **Fuel Oil and High RPM Diesel Engines.**
   C. **Detroit Diesel Maintenance Manual.**
   D. **The Generator Manual.**

2) **Preventative Maintenance . . . Is It Worth the Effort?,** Muskegon, Mich.: Continental Motors Corporation, 1957.

3) **Why Preventative Maintenance?,** Pontiac, Mich.: GMC Truck and Coach Division of General Motors Corporation (booklet).

INSTRUCTOR'S UNIT PLAN

Unit 17
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Freight Handling and Review of Units Five and Fifteen**

AIM: To develop student awareness of good customer relations through proper freight handling and review student knowledge of Department of Transportation rules and regulations.

INSTRUCTIONAL AIDS:

Filmstrip - **Silent Partner,** Kansas City, Mo.: Butter Manufacturing Company.

Charts - Terminal facility designs and layouts.

EQUIPMENT:

PRIMARY REFERENCES:

1) Instructional Data - **For the Best Freight Handler in the Industry,** National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Atlanta, Georgia 30305.

2) American Trucking Association, 1616 "P" Street, N. E., Washington, D. C. 20036. Booklets:

a. **Facts for Drivers.**
b. **Truck Driver Handbook.**
c. **The Motor Carrier Safety Regulations.**
d. **Dangerous Article Handling.**

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning freight handling.

II. PRESENTATION of INTEGRATED CONCEPTS

RELATED CONCEPTS

INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	SCIENCE
A. Terminal design and characteristics	1. Factors in terminal design and operation 2. Operational characteristics: a. Materials handling systems b. Types of traffic c. Docking facilities	
B. Freight handling	1. Loading and unloading. 2. Containerization. 3. Documentation: a. Bill of lading b. Claims c. Damage d. Collections 4. Handling dangerous articles.	
C. Review of safety regulations	1. Review DOT and ICC safety rules and requirements. 2. Review driving safety. 3. Review first aid procedures.	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
	1. References from American Trucking Association Safety Department Library.	1. What practical devices were found for loading and handling freight? 2. Terminal development over the last 50 years. 3. Future terminal designs.
1. Weight location and distribution. 2. Costs of indirect costs and documentation related to individual shipments. 3. Mathematical exercises involving documentation, calculation and interpretation.	1. Reading handling instructions. 2. Review of symbols and vocabulary pertinent to handling.	1. Control of movement by documentation.
	1. Identification of safety rules and regulations. 2. Recognizing safety signs and warnings on highways.	1. Accident prevention programs: a. Research

III. APPLICATION

A. Students should study and practice freight handling procedures,

B. Students should review and show evidence of their knowledge of the Department of Transportation rules and regulations.

IV. EVALUATION CRITERIA GUIDELINE

A. Written tests on freight handling procedures.

B. Written tests on Department of Transportation Regulations.

V. SUMMARY

A. Reasons for customer relations.

B. Reasons for safety regulations.

C. Importance of proper freight handling.

VI. SUGGESTED TIME and SEQUENCE LISTING

120 minutes . . . Freight handling.

120 minutes . . . Reviewing units five and fifteen.

120 minutes . . . Written examinations.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) Guidelines for Laying out a Truck Dock, **Transportation and Distribution Management,** June 1969, pp. 35-43.

2) Interstate Commerce Commission, **Revised Safety Regulations,** Washington, D. C.: American Trucking Association, Inc., January 1967.

3) **Methods of Freight Handling,** Washington, D. C.: American Trucking Association (booklet).

4) **What Do You Know About Trucks?,** Detroit: Automobile Manufacturers Association (booklet).

INSTRUCTOR'S UNIT PLAN

Unit 18
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Field Tests on Pretrip Inspection, Coupling-Uncoupling and General Road Operation**

AIM: To provide performance tests for students to exhibit their skills in handling tractor-trailer rigs.

INSTRUCTIONAL AIDS:

Field test sheets, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Atlanta, Georgia 30305.

EQUIPMENT:

Tractor-trailer.

PRIMARY REFERENCES:

1) See References on Unit 7 and 8.

I. INTRODUCTION and MOTIVATION

Develop student awareness of tests and grading systems.

II. PRESENTATION of INTEGRATED CONCEPTS

A. Not utilized.

III. APPLICATION

A. Check student knowledge of pretrip inspection items and their sequences as per score sheet.

B. Check student skills of road operation as per the items on instructor's score sheet.

IV. EVALUATION CRITERIA GUIDELINE

A. Grade students on tests and make them aware of their weak points and strong points.

V. SUMMARY

A. Review minimum operational standards and requirements for drivers to qualify for licensing.

VI. SUGGESTED TIME and SEQUENCE LISTING

180 minutes . . . Field pretrip inspection tests.

180 minutes . . . Field road operation tests.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

NATIONAL PROFESSIONAL TRUCK DRIVER TRAINING
ATLANTA, GEORGIA

Form DT-1 **14th Revision** **November 12, 1953**

PRE-TRIP UNIT INSPECTION SHEET

INSTRUCTOR SCORE SHEET

STUDENT ..... **DATE** ...../...../.....

			POINTS
1.	For failing to check belts, oil and water	3 items each 10	_____
2.	For improper starting of engine	6	_____
3.	For failing to check instruments	4 items each 5	_____
4.	For failing to check for unnecessary noises	10	_____
5.	For failing to secure vehicle	10	_____
6.	For failing to turn on all switches	3 items each 1	_____
7.	For failing to check parking lights	2	_____
8.	For failing to check headlights on both beams	2 items each 5	_____
9.	For failing to check cab lights, clearance and marker lights on trailer	3 items each 5	_____
10.	For failing to check turn signals, 2 each on tractor and trailer	4 items each 5	_____
11.	For failing to check tail and stop lights on tractor and trailer	2 items each 5	_____
12.	For failing to turn off all switches	3 items each 3	_____
13.	For failing to clean windshield and all mirrors	2 items each 10	_____
14.	For failing to check all tires and wheels on unit	Per tire 10	_____
15.	For failing to check front end assembly	6 items each 4	_____
16.	For failing to check air lines between tractor and trailer	10	_____
17.	For failing to check for fuel leaks	2	_____
18.	For failing to bleed air tanks on tractor and trailer	2 items each 5	_____
20.	For failing to check rear axle assembly	5	_____
21.	For failing to check 5th wheel and spare tires	2 items each 10	_____
22.	For failing to check suspension system or springs on trailer	10	_____
23.	For failing to adjust trailer brakes	10	_____
24.	For failing to check trailer doors and covers	5	_____
25.	For failing to check trailer support crank handle	5	_____
26.	For failing to check ICC safety equipment	6 items each 2	_____
27.	For failing to adjust doors, seat and windows	3 items each 2	_____
28.	For failing to adjust mirrors	20	_____
29.	For failing to check clutch clearance, steering wheel free play, brake and accelerator pedals for looseness	4 items each 5	_____
30.	For failing to check horns, heater, defroster and windshield wipers	4 items each 3	_____
31.	For improper starting of engine	5	_____
32.	For failing to check coupling between tractor and trailer	10	_____
33.	For failing to check foot brakes with vehicle in motion and hand brake	2 items each 10	_____
34.	For failing to secure vehicle	10	_____
35.	For failing to report all defects	5	_____
36.	For failing to make sure vehicle has been fueled	3	_____

ITEM #19 .....

INSTRUCTOR ..... **TOTAL SCORE** _____

NATIONAL PROFESSIONAL TRUCK DRIVER TRAINING
MILLVILLE, N. J.

Form DT-5 **12th Revision** **May 1962**

COUPLING-UNCOUPLING of TRACTOR-TRAILER UNITS

INSTRUCTOR'S SCORE SHEET

STUDENT ..... **DATE** ..../..../....

		Points
Uncoupling of Units		
1.	For failing to secure tractor and check trailer if necessary	10 ———
2.	For failing to lower trailer supports	10 ———
3.	For failing to secure handle in low range position	5 ———
4.	For failing to close cut-off cocks or tractor protection valve	5 ———
5.	For failing to disconnect EMERGENCY air line first	10 ———
6.	For failing to disconnect light cord and service air line	10 ———
7.	For failing to pull 5th wheel hook lock handle	3 ———
8.	For failing to pull ahead to proper position	10 ———
9.	For failing to check trailer supports	4 ———
Coupling of Unit		
1.	For failing to call out air pressure	10 ———
2.	For failing to back tractor to proper position	10 ———
3.	For failing to secure tractor	10 ———
4.	For failing to pull trailer hand valve lever down	5 ———
5.	For failing to check 5th wheel	6 ———
6.	For failing to check hazards around trailer	10 ———
7.	For failing to connect EMERGENCY air line first	10 ———
8.	For failing to connect light cord and service air line	10 ———
9.	For failing to open both cut-off cocks at same time or tractor protection switch	5 ———
10.	For failing to check trailer brakes with hand valve and re-open valve for backing	8 ———
11.	For failing to back under trailer without rolling forward	10 ———
12.	For failing to check coupling by pulling tractor forward	10 ———
13.	For failing to secure tractor	10 ———
14.	For failing to check coupling from underneath trailer	5 ———
15.	For failing to raise trailer supports	10 ———
16.	For failing to secure handle in low range position	5 ———

Item #19 .....

INSTRUCTOR ..... **TOTAL SCORE** ———

NATIONAL PROFESSIONAL TRUCK DRIVER TRAINING
ATLANTA, GEORGIA

Form DT-4 **17th Revision** **April 30, 1963**

ROAD OPERATION SCORE SHEET

STUDENT ..... **DATE** ...../...../..... **TRUCK #** .....

ITEM	TALLY ERRORS	SCORE
1. **Acceleration:** Too much ... (1) Too little ... (2) On down shift Accel. On upshift ... (1) Pats Accelerator ... (1) Rate of Accel. ... (1) Decel. ... (1) **Gears:** Clash ... (2) Force ... (5) Snay ... (3) Selection ... (3) Selector button ... (2) Fair skip ... (1) Roll ... (1) Speed shifting ... (1)	.....	.....
2. **Alertness:** Traffic situation ..... (20) Pedestrian ..... (20) Route, sign, signal ... (5)	.....	.....
3. **Braking:** Harsh ... (5) Fanning ... (2) With hand valve ... (2) Rebound ... (1)	.....	.....
4. **Clearances:** Overhead ..... (10) Right side ..... (10) Left side ..... (10)	.....	.....
5. **Clutch:** Rough release ... (5) Riding ... (3) Fail to double clutch ... (5) Slip ... (1)	.....	.....
6. **Coasting:** Missed gear ... (2) With clutch depressed too soon at stop ... (5)	.....	.....
7. **Courtesy:** Vehicle position ..... (10) Verbal expression ... (20) Other	.....	.....
8. **Doors:** Failed to secure trailer doors ..... (10), cab doors, other ... (5)	.....	.....
9. **Emotional Stability:** Nervous ... (5) Hesitant ... (5) Over-confident ..... (20) Other	.....	.....
10. **Engine:** Lugging ... (5) Racing ... (5) Stall ... (2) Failed to warm up ... (5)	.....	.....
11. **Eyes:** Straight ahead view ..... (10) Big view to sides ... (5) Move eyes around ... (3)	.....	.....
12. **Following Distance:** Improper space cushion ..... (20) Stopping too close ... (5)	.....	.....
13. **Horn:** Fails to tap horn to gain attention ... (5) Uses horn unnecessarily ... (1)	.....	.....
14. **Inspection:** Fails to run short inspection before trip ..... (10) Fails to read instruments 1 ..... (10) 2 ... (5) 3 ... (5) Air pressure low ..... (10)	.....	.....
15. **Intersections:** Passing at ... (20) Not under control ..... (10) Fail to yield ..... (20)	.....	.....
16. **Lanes:** Improper lane ..... (10) Straddle lanes ... (5) Failing to center vehicle ... (3)	.....	.....
17. **Lights:** Trailer lights ... (5) Head lights ..... (10) Inside lights ... (2)	.....	.....
18. **Meeting & Overtaking:** Mirror observance ..... (10) Signals ... (5) Pedestrians ..... (10)	.....	.....
19	.....	.....

NATIONAL PROFESSIONAL TRUCK DRIVER TRAINING
ATLANTA, GEORGIA

Form DT-4 **17th Revision** **April 30, 1963**

ROAD OPERATION SCORE SHEET

STUDENT ..... **DATE** ...../...../.....

	TALLY ERRORS	SCORE
ITEM:		
20. **Mirrors:** Not often enough .... (3) On turns ..... (10) Changing lanes ..... (10) Other	.....	.....
21. **Parking:** Proper place .... (5) Parking brake ..... (10) Proper gear .... (3) Chock .... (5)	.....	.....
22. **Railroad Crossings:** Changed gears ..... (10) Stopped improper position .... (5)	.....	.....
23. **Seat:** Failed to adjust properly .... (2) Ventilation .... (1) Arm in window .... (3)	.....	.....
24. **Signals:** Failed to give signal on time for turns .... (5) Changing lanes .... (5) Pulling onto highway .... (5) Pulling of highway .... (5) Fail to cancel .... (5)	.....	.....
25. **Speed:** Exceed limit ..... (10) Fast for conditions ..... (10) Slow for conditions .... (5)	.....	.....
26. **Starting Engine:** Improper use of starter .... (5) In gear .... (3) Clutch .... (3)	.....	.....
27. **Starting Vehicle:** Not use hand valve .... (3) Rolled back ..... (10) Park brake .... (5) Chock block .... (5) Trailer supply valve not on .... (5)	.....	.....
28. **Steering Wheel:** Hand position .... (3) One hand on wheel .... (5) Shifting while turning ..... (10) Jerkey .... (3)	.....	.....
29. **Stopping:** Stop sign ..... (10) Cross walk ..... (10) Other	.....	.....
30. **Turning:** Too short ..... (10) Too wide ..... (10) Inside to out ..... (10) Outside to in ..... (10)	.....	.....
31. **Traffic Signs:** Light ..... (20) Stop ..... (10) Yield ..... (10) Double Line ..... (10) Other	.....	.....
32. **Waiting in Traffic:** Holding up ..... (10) Too slow .... (5) Unnecessary delay (5)	.....	.....
33. **Fail to Respond to A Hazardous Situation:** ..... (25)	.....	.....

INSTRUCTOR ..... **TOTAL SCORE** ....

INSTRUCTOR'S UNIT PLAN

Unit 19
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Field Tests on Forward and Backward Serpentine, Jack-knife, 30' Alley and 100' Alley**

AIM: To develop tests for student to exhibit his skills.

INSTRUCTIONAL AIDS:

Field test sheets, National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Atlanta, Georgia 30305.

EQUIPMENT:

Barricades, ruler, markers and tractor-trailer.

PRIMARY REFERENCES:

1) Units Six through Twelve.
2) See References on Units 8, 9, 10, 11, 12 and 13.

I. INTRODUCTION and MOTIVATION

Develop student awareness of tests and grading system.

II. PRESENTATION of INTEGRATED CONCEPTS

A Not utilized in this lesson.

III. APPLICATION

A. Check students' backing skills of serpentine, 100' alley, 30' alley and jack-knife parking as per instructor's score sheets.

IV. EVALUATION CRITERIA GUIDELINE

A. Grade student on tests and make him aware of his weak points and strong points.

V. SUMMARY

A. Review minimum operational standards and requirements for backing exercises.

VI. SUGGESTED TIME and SEQUENCE LISTING

180 minutes . . . Field experiences on serpentine, offset alley.

180 minutes . . Field experiences on 30' and 100' alley, jack-knife parking and overhead clearance.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

FIELD SKILLS

STUDENT'S NAME ..... **DATE** ... / ... / ... **SCHOOL** .....

Scale for Inches, Pull-Ups, Back-Ups, Etc.:

1st	2nd	3rd	4th	5th	6th	7th	8th
0	1	2	4	8	16	32	64

A. Forward Zig-Zag (Serpentine) **Tally - Points**

1. Tally Scale for each back-up .....
2. Tally 5-10-20 for each barrel .....
3. Tally 10 for each marker line .....
4. 5-10-20 for each barricade .....

B. Forward Off-Set Alley

1. Tally 10 for each marker line .....
2. Tally 5-10-20 for barricades .....

C. Forward 100' Alley **Tally - Points**

1. Tally 10 for ball line .....
2. Tally 5-10-20 for barricades .....

Total .....

D. Overhead Clearance

1. Tally 10 for overhead bar or side stanchions .....

Total .....

THE ABOVE FOUR PROBLEMS CONSTITUTE THE FORWARD EXERCISES
(Five minute limit 50 point maximum)

Sub Total .....

E. Backward Zig-Zag (Serpentine) (Max. 50 pts.)

1. Tally scale for each pull-up .....
2. Tally 5-10-20 for each barrel .....
3. Tally 10 for each marker line .....
4. Tally 5-10-20 for barricades .....

F. Backward 100' Alley (Max. 50 pts)

1. Tally one point for each inch over 6" short of stop line .....
2. Tally scale for pull-ups .....
3. Tally 10 for ball line .....
4. Tally 5-10-20 for barricades .....

Total .....

The above four problems are called backing exercises. Five minutes will be allowed for each problem from time backing begins. Overtime on a problem before completion means loss of 50 points.

G. Jack-Knife Parking (Max. 50 pts.)

1. Tally 5-10-20 for dock barricades .....
2. Tally scale for pull-ups .....
3. Tally scale for difference in inches between each side of trailer at the back (must be within 12") .....

Total .....

H. 10' Alley-Dock

1. Tally scale for pull-ups .....
2. Tally 5-10-20 for barricades barricades .....
3. Tally scale for each inch difference between front and back measurements on same side. Trailer must be no closer than 6" from either side and within 12" of back dock. .....

Total .....

Sub-Total .....

Sub-Grand-Total .....

FIELD SKILLS (Continued)

STUDENT'S NAME ..... DATE ..... SCHOOL .....

THE FOLLOWING ITEMS WILL BE SCORED ON EACH PROBLEM:

(Will be scored in addition to the 50 points.)

	TALLY	POINTS
1. Tally 5 pts. for improper engine starting	———	———
2. Tally 5 pts. for rough operation	———	———
3. Tally 5 pts. for rough gear shifting	———	———
4. Tally 5 pts. for failure to properly secure vehicle	———	———
5. Tally 5 pts. for stalling engine	———	———
6. Tally 5 pts. for improper positioning on a test	———	———
7. Tally 5-10-20 for striking any object not otherwise specified	———	———
8. Tally 5 pts. for improper use of steering wheel	———	———
9. Tally 5 pts. for failure to follow designated procedures	———	———
10. Tally 20 pts. for placing feet on running board while vehicle is in motion	———	———
ITEM #19	———	———
	Total	———

SCORER ..... GRAND TOTAL ———————

INSTRUCTOR'S UNIT PLAN

Unit 20
Lesson 1
Time . . . . . 6 hours

CLUSTER: TRANSPORTATION

DIVISION: DRIVER TRAINING

SUBJECT: **Industry Standards and Job Counseling**

AIM: To develop student awareness of the industry's program that determines whether the job applicant can do the job effectively and can get along with fellow employees, customers and others.

INSTRUCTIONAL AIDS:

Application forms - American Trucking Association Form P-100, American Trucking Association, 1616 "P" Street, N. E., Washington, D. C. 20036.

Film - **The Road Ahead,** New York: Association Films, Inc. (16 mm, sound, 28 minutes).

Film - **Structure of Unions,** Washington, D. C.: Canadian Embassy (16 mm, sound, color, 11 minutes).

Film - **Dues and the Union,** Washington, D. C.: Canadian Embassy (16 mm, sound, 17 minutes).

EQUIPMENT:

16 mm projector, screen, application forms and personnel employment tests.

PRIMARY REFERENCES:

1) **Can I Get the Job?,** Detroit: General Motors Corporation (booklet).

2) **Pre-Training Data Units,** Atlanta, Georgia 30305: National Professional Truck Driver Training, 2996 Grandview, Avenue, N. E.

3) **Standards for Selection of Truck Fleet Personnel,** Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E. (booklet).

I. INTRODUCTION and MOTIVATION

Build a foundation for the student concerning the importance of employer-employee relationship. Show film: **The Road Ahead** to motivate students to think about their futures and the necessary preparation to fulfill their ambitions.

II. PRESENTATION of INTEGRATED CONCEPTS

INSTRUCTIONAL TOPICS	TECHNICAL CONCEPTS	RELATED CONCEPTS SCIENCE
A. Selection procedures	1. Interview 2. Application for employment 3. Check: a. Previous employers b. Personal references c. Additional background 4. Physical examination 5. Doctor's Certificate - American Trucking Association Form PC-101.	
B. Public relations	1. Promotion of safety programs 2. Driver's role: a. Practice safe driving rules 3. Clean equipment 4. Condition of equipment 5. Identification of equipment 6. Customer relations: a. Courtesy b. Service	
C. Company policies	1. Labor contract 2. Duty requirements 3. Campany benefits 4. Disciplinary policies 5. Proper routes 6. State regulations: a. Fuel permits b. Purchasing laws	

TO BE DEVELOPED

MATH	COMMUNICATIONS	SOCIAL STUDIES
	1. Understanding of interviewing techniques and practice in using them. 2. Understanding personal data sheets and questionnaires.	1. The success of selection and training programs in industry. 2. Failures of industrial training programs. 3. Types of backgrounds of people in truck driving.
	1. Communicating with customers.	1. Importance of projecting a neat, clean appearance to the public.
1. Cost of labor and management. 2. Figuring employee benefits.	1. Contracts and negotiations.	1. Effects of unions on trucking industry.

III. APPLICATION

A. Students should practice filling out employment applications.

B. Students should practice familiarziation with industry's standards for personnel.

C. Class can role-play interview techniques to gain experiences with obtaining a job.

IV. EVALUATION CRITERIA GUIDELINE

A. Questions on driver qualifications outlined by the industry.

B. Questions on public relations and handling people.

C. What are the reasons for thorough driver selection programs?

V. SUMMARY

A. Importance of industry's standards pertaining to employees.

B. Importance of accurate information on employment application.

C. Importance of employee's role in public and customer relations.

VI. SUGGESTED TIME and SEQUENCE LISTING

120 minutes . . . Selection procedures and interviewing techniques.

90 minutes . . . Employment applications.

90 minutes . . . Public relations.

60 minutes . . . Related concepts.

VII. SUPPLEMENTAL REFERENCES and RESOURCE MATERIAL

1) ATA, **American Trucking Trends.** Washington, D. C.: American Trucking Association, 1964.

2) Kiley, E. V., **Highway Transport Potential.** Washington, D. C.: American Trucking Association, 1959.

3) Lopez, F. M., "Which Man Would You Assign to Each Job?" **Factory.** December 1966, pp. 78-80.

BIBLIOGRAPHY

American Red Cross First Aid Book. Washington, D. C.: Daniels, Leonard, Director, District of Columbia Chapter.

Application Forms - Form P-100. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Care and Service of Truck Tires. New York 10022: Rubber Manufacturers Association, 444 Madison Avenue.

Cars and Trucks Publication. Washington, D. C. 20006: National Automobile Dealers Association, 2000 "K" Street, N. W. (Booklet).

Chevrolet Automobile Data Book. Detroit. Michigan 48202: Chevrolet Motor Division, General Motors Corporation.

Chevrolet Truck Data Book. Detroit, Michigan 48202: Chevrolet Motor Division, General Motors Corporation.

Dangerous Articles Handling. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Driver's Daily Log Talkographic Flip Chart. Worth, Illinois 60482: Armour and Company, Automotive Studio, 10940 Depot Street.

Driver's Manual Department of Motor Vehicles, State Applicable.

Driver's Manual. Pontiac, Michigan: General Motors Corporation, Truck and Coach Division.

Driver's Manual. Downingtown, Pennsylvania: Gindy Manufacturing Corporation.

Driver's Manual. Chicago, Ill. 60611: International Harvester Truck Company.

Driver's Manual. Allentown, Pennsylvania: Mack Truck Corporation.

Driver's Manual. Truck Companies Applicable.

Facts for Drivers. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

For the Best Freight Handler in the Industry. Atlanta, Ga. 30305: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312.

General Maintenance Manual for Truck Drivers. Atlanta, Ga. 30305: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312.

Motor Carrier Safety Regulations. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Pre-Training Units. Atlanta, Ga. 30305: National Professional Truck Driver Training, 2996 Grandview Avenue, N. E., Suite 312.

Publications. Washington, D. C. 20036: Department of Safety, American Trucking Association, 1616 "P" Street, N. E.

Service Department. Detroit, Michigan 48232: Cadillac Motor Car Division, General Motors Corporation.

Smith System. Los Angeles 5, California: Driver Improvement Institute, Inc., 3757 Wilshire Blvd. (Booklet).

Standard Traffic Control Signs. Washington, D. C. 20402: Superintendent of Documents, Government Printing Office (Chart).

Standards for Selection of Truck Fleet Personnel. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Tire Manual. Akron 16, Ohio: The Goodyear Tire and Rubber Company.

Truck Driver Training Book. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Truck Driver's Handbook. Washington, D. C. 20036: American Trucking Association, 1616 "P" Street, N. E.

Uniform Traffic Control Devices. Washington, D. C. 20402: Superintendent of Documents, Government Printing Office (manuals).